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Tuna Newsletter

National Marine Fisheries Service
- Southwest Region
- Southwest Fisheries Science Center

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U.S. TUNA STATISTICS

Editor's note: The following articles were prepared by NMFS personnel from data and information gathered from sources in the U.S. tuna industry and government. The U.S. tuna canning industry is composed of four companies with six canneries based in the U.S., that is, two canneries in each of the three canning locations of American Samoa, California and Puerto Rico. Under the confidentiality rules that guide the dissemination of information from business sources by the NMFS, data from at least three companies must be combined for publication. Therefore, cannery receipts for all U.S. canning locations are combined for presentation in the Tuna Newsletter.

U.S. CANNED TUNA INDUSTRY HIGHLIGHTS, SECOND QUARTER 1996

Total receipts of tuna by U.S. canners during the second quarter of 1996 (April-June) decreased by 5% to the equivalent of 111,800 short tons (st) of whole fish (round weight), compared to the second quarter of 1995 (Table 1). The principal species received was skipjack tuna with 61% of the total, followed by yellowfin tuna and albacore with 20% and 19% of the total, respectively. Yellowfin tuna receipts were up by 58%, while skipjack tuna and albacore receipts were down by 8% and 27%, respectively.

Receipts for the first two quarters of 1996 totaled 213,200 st, down 10% from the previous year (Table 2). Yellowfin tuna receipts were up by 47%, while albacore and skipjack tuna receipts were down by 10% and 23%, respectively.

Although the vast majority of tuna received by U.S. canners is whole fish, some quantity is received as loins or gilled-and-gutted. Receipts

Table 1. Total U.S. cannery receipts (st) by species for the second quarters of 1995 and 1996. Totals may not add due to rounding.

Apr-Jun	Type	Albacore	Skipjack	Yellowfin[1]	TOTAL
1995	ROUND	28,700	55,200	10,900	94,800
	GILLED & GUTTED	0	0	100	100
	LOIN	*	8,400	1,500	9,900
	TOTAL (as received)	28,700	63,600	12,500	104,900
	TOTAL (round weight)[2]	28,800	74,100	14,400	117,200
1996	ROUND	21,000	48,900	14,200	84,100
	GILLED & GUTTED	*	0	100	100
	LOIN	*	8,500	3,800	12,300
	TOTAL (as received)	21,100	57,400	18,000	96,400
	TOTAL (round weight)[2]	21,100	68,000	22,700	111,800

*Less than 100 st reported for this category.
[1]May include a small amount of bigeye tuna.
[2]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

Table 2. Total U.S. cannery receipts (st) by species for the first two quarters of 1995 and 1996. Totals may not add due to rounding.

Jan-Jun	Source	Albacore	Skipjack	Yellowfin[1]	TOTAL
1995	ROUND	53,800	113,500	26,100	193,400
	GILLED & GUTTED	0	0	400	400
	LOIN	*	16,400	2,800	19,200
	TOTAL (as received)	53,800	129,800	29,400	213,000
	TOTAL (round weight)[2]	53,800	150,300	32,900	237,000
1996	ROUND	48,300	86,000	33,400	167,800
	GILLED & GUTTED	*	0	600	600
	LOIN	*	13,500	6,400	19,900
	TOTAL (as received)	48,400	99,500	40,300	188,200
	TOTAL (round weight)[2]	48,400	116,400	48,400	213,200

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

[2]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

Table 3. U.S. cannery receipts (st) of domestic and imported tuna by species for the second quarters of 1995, 1996 and the recent (1991-95) second quarter averages. Totals may not add due to rounding.

Apr-Jun	Source	Albacore	Skipjack	Yellowfin[1]	TOTAL
		TOTAL CANNERY RECEIPTS (ALL LOCATIONS)			
1995	DOMESTIC	300	40,700	8,300	49,300
	IMPORTED	28,500	22,800	4,200	55,500
	TOTAL	28,700	63,600	12,500	104,900
1996	DOMESTIC	700	28,000	8,300	37,000
	IMPORTED	20,300	29,400	9,700	59,400
	TOTAL	21,100	57,400	18,000	96,400
1991-95 Average	DOMESTIC	700	32,700	12,900	46,400
	IMPORTED	24,500	23,400	12,700	60,700
	TOTAL	25,200	56,200	25,600	107,000

[1]May include a small amount of bigeye tuna.

Table 4. U.S. cannery receipts (st) of domestic and imported tuna by species for the first two quarters of 1995, 1996 and the recent (1991-95) averages. Totals may not add due to rounding.

Jan-Jun	Source	Albacore	Skipjack	Yellowfin[1]	TOTAL
		TOTAL CANNERY RECEIPTS (ALL LOCATIONS)			
1995	DOMESTIC	2,500	82,000	16,800	101,400
	IMPORTED	51,300	47,800	12,600	111,600
	TOTAL	53,800	129,800	29,400	213,000
1996	DOMESTIC	2,200	53,700	20,000	76,000
	IMPORTED	46,200	45,800	20,300	112,300
	TOTAL	48,400	99,500	40,300	188,200
1991-95 Average	DOMESTIC	2,600	67,800	23,100	93,400
	IMPORTED	44,000	44,000	23,400	111,400
	TOTAL	46,600	111,800	46,400	204,800

[1]May include a small amount of bigeye tuna.

of tuna loins for the second quarter of 1996 were up by 24%, while receipts of loins for the first two quarters were up by 4%. (Loins and gilled-and-gutted receipts are converted to round weight receipts by factors of 2.25 and 1.11, respectively. For this article, unconverted receipts are used unless otherwise stated.)

Domestic deliveries to U.S. canners for the second quarter of 1996 decreased by 25%, while imported deliveries increased by 7% (Table 3). Skipjack tuna was easily the largest component of all domestic deliveries at 28,000 st. Imports outpaced domestic deliveries by 22,400 st.

For the first two quarters of 1996, domestic deliveries decreased by 25% from the previous year, while imported deliveries increased by 1% (Table 4). Imports accounted for 60% of the tuna delivered to U.S. canners.

Skipjack tuna was the leading import for the second quarter of 1996 at 29,400 st, followed by albacore and yellowfin tuna at 20,300 st and 9,700 st, respectively (Table 5). The leading supplier was Taiwan, with 37% of the import market, followed by South Korea and Ecuador with 22% and 6% of the market, respectively.

The western Pacific Ocean was the source of 68% of the tuna received by U.S. canners during the second quarter of 1996 (Table 6). The next greatest sources were the eastern Atlantic and eastern Pacific oceans, each accounting for 12% of the tuna received by U.S. canners.

U.S. imports of canned tuna (packed in oil or water) totaled 215,365,000 pounds in 1995, down 14% from 1994. The value of imported canned tuna in 1995 was $233,504,000, down 18% from 1994 (Table 7).

Table 5. U.S. cannery imports (st) of tuna by species and source (flag of catcher vessel) for the second quarter of 1996. Totals for the second quarter of 1995 are given for comparison. Note that the flag of the catcher vessel does not necessarily reflect the country of export or point of shipment. Totals may not add due to rounding.

VESSEL FLAG	1996				1995
	Albacore	Skipjack	Yellowfin[1]	TOTAL	TOTAL
BELIZE	0	400	300	800	100
COLOMBIA	0	100	*	100	0
ECUADOR	0	1,900	1,900	3,700	2,400
FSM	0	800	200	900	1,000
FIJI	100	0	0	100	0
FRANCE	100	0	0	100	9,000
GHANA	0	1,600	900	2,500	0
GRAND CAYMANS	0	1,400	600	2,000	0
JAPAN	2,700	0	0	2,700	5,700
MEXICO	0	500	0	500	0
NEW ZEALAND	2,300	*	0	2,300	1,800
PANAMA	200	200	0	400	3,200
PAPUA NEW GUINEA	0	900	*	900	0
SIERRA LEONE	0	800	700	1,600	0
SOLOMONS	100	0	0	100	1,800
SOUTH AFRICA	900	0	0	900	2,300
SOUTH KOREA	400	10,000	2,600	13,000	3,900
SPAIN	0	200	100	200	0
TAIWAN	13,300	7,900	600	21,800	20,800
USA	0	1,000	800	1,800	1,200
VANUATU	0	1,700	1,000	2,700	300
VENEZUELA	0	200	*	200	100
WESTERN SAMOA	100	0	*	100	0
OTHER	100	0	*	200	2,000
TOTAL	20,300	29,400	9,700	59,400	55,500

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

Table 6. Receipts (st) of tuna by U.S. canneries by species and area of capture for the second quarters of 1995 and 1996. Totals may not add due to rounding.

SOURCE	Albacore		Skipjack		Yellowfin[1]	
	1995	1996	1995	1996	1995	1996
E. ATLANTIC OCEAN						
DOMESTIC	0	0	0	0	0	0
IMPORTED	7,500	4,600	1,900	4,700	500	2,600
TOTAL	7,500	4,600	1,900	4,700	500	2,600
W. ATLANTIC OCEAN						
DOMESTIC	*	0	0	0	0	0
IMPORTED	5,200	5,700	*	*	*	*
TOTAL	5,200	5,700	*	*	*	*
E. PACIFIC OCEAN						
DOMESTIC	*	0	2,600	1,600	2,400	2,300
IMPORTED	300	0	3,600	4,000	1,100	3,300
TOTAL	300	0	6,200	5,600	3,500	5,600
W. PACIFIC OCEAN						
DOMESTIC	200	700	38,200	26,300	5,900	6,100
IMPORTED	13,000	7,500	10,500	20,700	200	3,700
TOTAL	13,200	8,200	48,700	47,100	6,100	9,800
INDIAN OCEAN						
DOMESTIC	0	0	0	0	0	0
IMPORTED	2,600	2,600	6,800	0	2,400	0
TOTAL	2,600	2,600	6,800	0	2,400	0

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

U.S. TUNA FISHERIES UPDATE EASTERN PACIFIC TROPICAL TUNA FISHERY

During the period January through September 1996, nine U.S. tuna purse seiners participated in the eastern tropical Pacific tuna fishery and caught an estimated 12,600 metric tons (mt) of yellowfin and bigeye tuna and 9,400 mt of skipjack tuna. The combined yellowfin and bigeye tuna catch was down 5% from the 1995 catch for the same period, and the skipjack tuna catch was also down 5% (Figure 1).

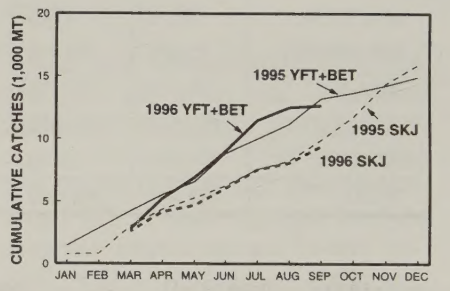

Figure 1. Cumulative tuna catches, by month, for the U.S. eastern tropical Pacific purse seine fishery, 1995 and 1996.

During this same period, the surface fleets (purse seiners and baitboats) of all nations fishing in the eastern Pacific Ocean caught an estimated 232,200 mt of yellowfin and bigeye tuna and 77,100 mt of skipjack tuna. The leading nation was Mexico with 38% of the total catch, followed by Venezuela and Ecuador with 17% and 15% of the catch, respectively. The U.S. fleet accounted for 8% of the tuna catch.

WESTERN PACIFIC TROPICAL TUNA FISHERY

For the period January through September 1996, U.S. tuna purse seiners fishing in the western tropical Pacific under the South Pacific Tuna Treaty landed an estimated 90,600 mt of skipjack tuna and 21,300 mt of yellowfin and bigeye tuna (Figure 2). The skipjack tuna landings were down 20% and the

Table 7. U.S. imports and value of canned tuna packed in oil or water by principal sources. (Source: U.S. Bureau of the Census)

SOURCE	QUANTITY (1,000 POUNDS)					
	1990	1991	1992	1993	1994	1995
ECUADOR	3,395	2,609	35	2,310	3,057	827
INDONESIA	21,509	47,333	36,585	25,510	25,578	31,390
MALAYSIA	2,938	4,188	2,781	2,564	2,917	2,226
PHILIPPINES	27,045	21,949	39,547	38,705	38,328	56,381
TAIWAN	17,410	23,306	10,445	6,915	4,112	380
THAILAND	205,049	247,473	231,832	139,501	171,249	122,734
OTHER	7,247	4,886	2,188	6,130	3,801	1,427
TOTAL	284,593	351,744	323,413	221,635	249,042	215,365
	VALUE ($1,000)					
ECUADOR	2,989	2,253	28	5,094	3,270	738
INDONESIA	18,056	39,946	26,448	23,610	31,728	38,028
MALAYSIA	3,613	6,764	4,994	4,316	5,734	4,245
PHILIPPINES	22,018	18,698	30,548	32,452	37,967	51,126
TAIWAN	26,120	32,725	19,042	12,608	7,890	671
THAILAND	213,562	252,488	225,286	141,280	194,818	136,589
OTHER	7,514	6,013	2,543	5,823	4,543	2,107
TOTAL	293,872	358,887	308,889	225,183	285,950	233,504

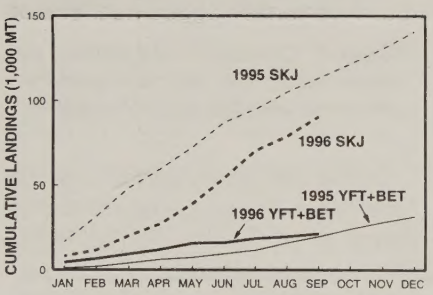

Figure 2. Cumulative tuna landings, by month, for the U.S. western tropical Pacific purse seine fishery, 1995 and 1996.

combined yellowfin and bigeye tuna landings were up 9% from the 1995 landings for the same period. Forty vessels have landed tuna from 122 trips in 1996 compared to 42 vessels and 130 trips in 1995. *(Report provided by Doug Prescott, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

NORTHERN PACIFIC ALBACORE FISHERY

The 1996 U.S. North Pacific albacore season began in May 1996 north of Midway Island. Many U.S. vessels ventured west of the international dateline and fished in the same areas with Japanese pole-and-line boats. Several troll vessels reported catching albacore with fresh gill net marks. During June and July the fleet moved eastward and was joined by additional vessels of shorter range from West Coast ports in areas near 43°N and 152°W. Throughout August and September fishing remained excellent between 40-44°N from 150-155°W. Fishing along the U.S. West Coast was also excellent, and small incidental catches were made off Southern California. Many more Canadian troll vessels participated in the 1996 North Pacific season. Transshipment vessels made four trips to the grounds to off-load fish from troll vessels and take them to the canneries in American Samoa. One NMFS observer accompanied a troll vessel to collect logbook, length-frequency and gill net interaction information. Total landings are not yet available but are expected to surpass the 9,486 mt tons landed in the 1995 North Pacific season. The average CPUE for the 1995 North Pacific season was 49 fish per day. The average CPUE from the one observed 1996 trip was 344 fish per day. *(Report provided by John Childers, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

SOUTHERN PACIFIC ALBACORE FISHERY

The 1995-96 South Pacific albacore fishery began in December 1995 and ended in April 1996. Approximately 50 U.S. troll vessels participated in the fishery compared to 21 vessels in the 1994-95 fishery. Total landings decreased from 2,319 mt in 1994-95 to 2,050 mt. Logbook and length-frequency data are being summarized. Average CPUE (in numbers of fish caught per day of fishing) in past seasons has varied from 43 to 178 fish. The average CPUE for the 1994-95 season was 170 fish. *(Report provided by John Childers, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

WESTERN ATLANTIC BLUEFIN TUNA FISHERY

For the 1996 western Atlantic bluefin tuna fishery through the end of September, a total of 4,130 bluefin tuna was landed with a gross weight of 782 mt and an average weight of 417 pounds per fish. A summary of landings is given in Table 8 (*next page→*). *(Report provided by Mark Murray-Brown, NMFS Northeast Region, Gloucester, MA)*

Table 8. U.S. commercial landings of Atlantic bluefin tuna for 1996 through September 30.

Category	Number of Fish	Average Wt. (lbs.)	Gross Wt. (mt)	Quota* (mt)
GENERAL	2,707	394	484.2	541
Handline	166	408	30.7	
Rod & Reel	2,376	393	423.6	
Harpoon	165	400	29.9	
HARPOON	307	414	57.7	53
INCIDENTAL	248	539	60.6	110
N. Longline	86	460	17.9	23
S. Longline	156	591	41.8	86
Other	6	311	0.8	1
PURSE SEINE	849	457	176.0	251
Giant	808	465	170.4	
Large Medium	41	298	5.5	
ANGLING	19	355	3.1	5
RESERVE	0	-	0.0	108
TOTAL	4,130	417	781.5	1,068

*The initial 1996 quota allocations may be revised later in the year based on transfers and drawing from the reserve.

REPORTS

Editor's note: Original reports are published as a service to subscribers and may not represent the views of the NMFS. Readers should contact the authors of reports for details, if needed.

AUTOMATED MONITORING OF YELLOWFIN TUNA AT HAWAIIAN FADS

A. Peter Klimley[1] & Charles Holloway[2]

Yellowfin tuna that announce their presence by ultrasonic telemetry transmitters are providing insight into how they travel and forage: individuals may stay together in a school for months and repeatedly visit the same sites over and over again. These tuna, outfitted with coded beacons near Kaena Point, Oahu, Hawaii, are detected by electronic listening devices on one subsurface and four surface fish aggregation devices (FADs).

These FADs have been deployed off the coasts of the major Hawaiian Islands and are used by recreational and commercial fishermen to increase their catch of tuna and billfish. The sub-surface FAD is located two km from shore at the shelf's edge in water 400 m deep. Three of the four surface moorings form a line 6-7 km from shore with a separation distance of 7 km. They are located in water 560-840 m deep. The fourth mooring is situated 19 km west of Kaena Point at a depth of 1,900 m.

Fifty-one yellowfin tunas with lengths 59-125 cm and weights 5-26 kg have been tagged to date either by ourselves or local sport and commercial fishermen under our supervision. The tunas are hooked and quickly brought to the boat where they are weighed and measured before an incision is made in their abdomen through which a small cylindrical tag is inserted before the wound is closed with surgical stables. The whole procedure is completed and the tuna released within a minute.

We interrogate these monitors monthly for their computerized files of when the tunas visited the FADs. These records indicate that yellowfin tuna (1) return frequently to the same FAD at which they were tagged and rarely to adjacent FADs over a period of 2.5 months, (2) usually stay for intervals less than 1 hr, but occasionally for periods greater than 10 hrs, (3) often visit twice per day, once during daytime and once during nighttime, and (4) arrive and depart from the vicinity of the FADs at the same time.

This last observation suggests that yellowfin tunas may remain together within a single school on the above time scale. For example, two tunas, tagged near the subsurface FAD, arrived together on five separate days over an 18-day period. Five tunas, tagged near one of the surface FADs, returned together with one to four tag-mates on ten separate days over a 81-day period. If alerted in the future of the arrival of these tagged fish by a radio-link to shore, we could quickly reach the FAD in a vessel and track the individuals to get further proof that they remain together once they leave the vicinity of the FAD.

Tagged yellowfin tuna have returned to the moorings after periods as long as 5.5 months. Over shorter periods, the tunas have a predilection for returning to the same FAD at which they were tagged; however, over longer periods, they appear equally likely to return to an adjacent FAD. We hope to be able to keep the listening stations operative for another year so that we can monitor their attendance at the FADs over the entire 18-month life of the acoustic tags. This will permit us to determine whether the tunas return to this "home" series of FADs after 6-12 month forays away in the Pacific Ocean. If so, it will be possi-

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ble for future tags, equipped with an ultrasonic modem, to send to the listening station via an electronic signal a file of the daily positions (i.e., geolocations based upon light measurements) while away from the FAD. We also plan to upgrade the monitors to recognize acoustic tags used by other scientists on a variety of species such billfish and sharks.

Of particular interest is the insight this technology can provide into the habits of schooling fishes. Unlike traditional marking studies in which recapture results in the loss of the tagged fish's life, these tagged individuals can be detected over and over unharmed throughout the entire life of the tag as long as they approach to within a kilometer of a listening station. The repeated simultaneous arrivals and departures of marked individuals indicate that they spend at least part of their lives within the same school. In addition, these groups of tag-mates appear directed in their return to that particular FAD where they were tagged, not other FADs in the same general area equipped with monitors.

Of even greater interest is the tendency for individuals to be detected repeatedly at the same time of day over the 2.5-month period. These favored times do not simply coincide with dawn and dusk when the abrupt changes in light would serve as an obvious cue to aggregation. This observation leads one to wonder whether yellowfin tuna might have a sense of time and their geographical position. This would explain the ability of tunas tracked by Holland *et al.* (1992) and Yuen (1970) to a distance of 10 km from the same FADs and a local reef before returning to their home sites. Klimley *et al.* (1988), using similar coded-transmitters and listening stations, also found high arrival-time precision and site fidelity to the homing movements of scalloped hammerhead sharks at a seamount in the Gulf of California. Individuals moved back and forth along the same paths, some extending as far as 20 km from the seamount. One is tempted to speculate that tunas develop specific foraging routes, too, that take them past the FADs on a regular schedule. It certainly would be beneficial for fishes to incorporate specific sites into their foraging schedule rather than just foraging randomly. However, we must await the results of a detailed statistical analysis comparing the actual times when tunas arrive at the FADs to simulated "random" times before believing too seriously they have a foraging schedule as suggested by the first long-term attendance records of yellowfin tuna at FADs in Hawaiian waters.

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RECENT DEVELOPMENTS IN TUNA FISHERIES

Editor's note: The following news items, compiled from fishery trade and industry journals, newspapers and NMFS reports, are provided only as a service to our readers. The NMFS does not guarantee their accuracy.

UNITED STATES

Alternative Tuna Fishery— In late August 1996, the Massachusetts Institute of Technology's Sea Grant Program (Center for Fisheries Engineering) reported experimental fishing research indicating that midwater pair trawling appears to be highly efficient, resource-sparing, and protective of marine mammals for catching bigeye, yellowfin, and albacore tunas in the northwest Atlantic. Although NMFS currently only permits longlining and gillnetting for commercial tuna fishing in the Atlantic, NMFS observers will provide data on midwater pair trawling trials for determining whether NMFS might approve this alternative harvesting method. (MIT Sea Grant Program news release)

Bluefin Tuna— On September 12, 1996, NMFS published an advance notice of proposed rulemaking for the Atlantic bluefin tuna fishery including (1) requiring annual permits, establishing mutually exclusive sport and commercial categories, and recovering administrative costs with a permit fee; (2) modifying angling category quotas to address geographic equity concerns; (3) establishing mandatory self-reporting for recreational catch; (4) modifying catch requirements for the incidental longline fishery; (5) establishing measures to implement any quota modifications following November 1996 international tuna meetings; and (6)

developing methods to improve quota monitoring and enforcement. (Federal Register)

Southern California Cannery Opens— Six months after Southern California's sole remaining tuna cannery went bankrupt, a new one took its place at the same site, putting $6.8 million into the purchase and $5 million into repairs and renovations. "We're canning yellowfin, skipjack and albacore, and we may market processed loins," said Joe Hamby, president of Tri-Union International, owner of the Terminal Island cannery near San Pedro, which operates in the retrofitted shell of the 50-year-old Pan Pacific Fisheries plant. "We also plan to can or freeze squid, mackerel and sardines," he adds, pledging an era of new opportunity for regional fishermen.

Tri-Union emerged from a partnership between San Pedro-based Tri-Marine International, one of the world's top tuna traders, and Thai Union Frozen Products, which operates five canneries in Thailand. San Diego-based Caribbean Marine–a four-boat tuna fleet–is also a partner in the operation. Tri-Union took its first deliveries in mid-June, including a load of prime 300-lb. yellowfin tuna from the San Pedro-based purse seiner *Donna B*. It was also buying albacore (3 lbs. and up) for $1,950 per ton. (*National Fisherman*, September 1996)

Bluefin Tuna Experiment Launched— The New England Aquarium has launched an experiment to keep bluefin tuna in pens to learn more about how better to manage the resource. The Boston-based aquarium has assembled a 50-foot-deep, 92-foot-diameter cage to grow small tuna. One group of tuna will be kept in, and then released from, the cage off the Virginia coast during the summer. The cage will be moved to Cape Cod in the fall, where another group of bluefin will be captured. The primary goal is to learn more about tuna biology, but the findings could also help determine if the fish can be raised in captivity for commercial purposes. About 50 bluefin tuna under 100 lbs. each were scheduled to be caught by hook and line and put into the fish cage in early summer. When they are released, some will be tagged so their movement and mortality rates can be tracked.

WESTERN PACIFIC

FSM-Korea Tuna Agreement— In mid-July 1996 the Federated States of Micronesia and the Korean Deep Sea Fishing Association concluded an agreement that would allow 29 South Korean purse seiners to catch yellowfin, skipjack, albacore and other tunas in FSM waters. (AP)

EASTERN ATLANTIC

Morocco-Japan Agreement Renewed— Japan and Morocco have concluded talks on renewing their bilateral fisheries agreement which has been in effect since 1985. The terms of the renewal are basically the same as in the previous agreement: (1) as many as 30 Japanese longliners will be allowed to catch tuna in Moroccan waters; (2) Japan will pay a $2,000 access fee as well as a $4,300 license fee for each vessel; (3) one Moroccan scientific observer will be present on each of five Japanese vessels, with the estimated cost of $30,000 to be covered by Japan; (4) Japan will provide Morocco with $33,000 worth of fishing equipment, a 10% increase over the 1995 amount. One significant difference from the previous agreement is that one Moroccan will be employed on each Japanese vessel (with the exception of the Japanese vessels hosting scientific observers). In the previous agreement, four Moroccans were employed on Japanese vessels with 35 Moroccans receiving onshore training. (INFOFISH *Trade News*, October 2, 1996)

UPCOMING TUNA MEETINGS

(Organizer; meeting type: sci=science, adm=administration)

- NOV 4-6. Getting Ahead of the Curve: A Symposium on Managing Highly Migratory Fish of the Pacific Ocean. Monterey, CA. (National Coalition for Marine Conservation; adm)
- NOV 11-15. World Meeting on Bigeye Tuna. La Jolla, CA. (IATTC; sci)
- NOV 22-29. ICCAT Annual Commission meeting. San Sebastian, Spain. (ICCAT; adm)
- NOV 27-29. Tuna: Prospects & Strategies for the Indian Ocean, Quatre Bornes, Mauritius. (Indian Ocean Commission; sci)

1997

- MAR 3-6. 2nd International Symposium on Pacific Swordfish, Honolulu, HI. (NMFS; sci)
- MAY 19-22. 48th International Tuna Conference, Lake Arrowhead, CA. (IATTC; sci)
- DEC. 15th Northern Pacific Albacore Workshop in Nanaimo, BC. (Canadian Dept. of Fisheries and Oceans; sci)

INDIAN OCEAN

Somalia Opens Waters to Foreign Fleets— Somalia's waters have at last been opened to foreign fishing vessels after years of uncertainty. A volatile political situation in Somalia had meant that foreign fishing vessel operators reluctantly avoided entering those waters. They had to bypass rich tuna grounds because they would have

faced the threat of hostile action and increased insurance premiums. Recently, however, the three interim government authorities in control of the coastline have reaffirmed their control over the 200-mile fisheries zone by a series of declarations. (INFOFISH *Trade News*, October 2, 1996)

New Tuna Plant for Oman— A new $7.8 million tuna processing and canning factory is set to start production later this year in Oman financed by both Omani and Saudi Arabian investors. A new company, the Omani-Saudi Food Canning Factory, has been set up to run the factory which will produce around 900,000 cases of canned tuna a year for markets in Europe, Japan, the U.S. and Gulf and Asian countries. (*Fishing News International*, October 1996)

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